REMARKS/ARGUMENTS

The application has been carefully reviewed in light of the September 6, 2007 Office Action. In light of the foregoing amendments and remarks, applicant respectfully requests reconsideration and reexamination of the application, as amended.

TIME EXTENSION REQUEST

Applicant submits herewith a three-month time extension request, with pertinent fee.

DRAWINGS

Applicant notes that on the cover page or Office Action Summary, the drawings are objected to by the Examiner. However, on page 2 of the Office Action, it is indicated that the applicant's drawings which were submitted are acceptable for examination purposes. Applicant is assuming that the summary cover page is a typographical error, and is operating under the assumption that the drawings are acceptable.

CLAIM REJECTIONS - 35 U.S.C. §101

Claims 1-34 were rejected under 35 U.S.C. §101 based upon the assertion that the claimed invention is directed to non-statutory subject matter. Applicant respectfully traverses this rejection and asserts that the invention is directed to functional matter falling within the scope of §101. 35 U.S.C. § 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof may obtain a patent therefor, subject to the conditions and requirements of this title.

The United States Supreme Court in its *Benson, Flook, and Diehr* decisions have elaborated on the use of the expansive term "any" in §101 as representing Congress' intent not to place any restrictions on the subject matter for which a patent may be

obtained beyond those specifically recited in §101 and other parts of Title 35. The Supreme Court in these decisions has explained that there are only three categories of subject matter for which one may not obtain patent protection namely "laws of nature, natural phenomena, and abstract ideas, such as pure mathematical algorithms and equations". Applicant's invention does not fall within these three categories and is in fact functional.

In the application itself, there are several examples of real world results and application of the invention, as recited in the claims, which are useful, tangible and concrete. Applicant respectfully submits that a process for visually organizing informational concepts and relationships does produce real world useful results.

As further evidence of the useful real world results that can be achieved by such organization and analysis of such concepts and relationships related to data, applicant looks no further than the two references which have been cited against applicant in this case. Both Chi et al. (U.S. Patent No. 6,509,898) and Zhang (U.S. Patent No. 6,897,875) are directed to methods for analysis and visualization of data using different graph structures and shading. If the Examiner persists in this rejection, applicant respectfully requests an explanation as to why the claims of these two patents were allowed by the United States Patent and Trademark Office, whereas the Examiner is rejecting the claims of the present application.

CLAIM OBJECTIONS

In paragraph 6 (pages 3-4) of the Office Action, the Examiner sets forth vague claim objections directed to claims 1, 16, 20, 25 and 31 due to various informalities. Applicant is unsure what the basis of these objections are. Is this a 35 U.S.C. §112 rejection? The rejections appear to be based upon a lack of understanding of the invention. In fact the Examiner has cited to page 3, line 18 of the Specification in an attempt to define and limit the scope of claims 1, 16 and 31. However, page 3, line 18 is directed to the background of the invention, and references a 1956 article discussing experiments based on various methods of communicating one-dimensional information

and measuring the ability of people to correctly retain that information. Applicant respectfully submits that it is improper to limit the claims or the invention to "increase the amount of data until the point of absolute judgment has been exceeded" as proposed by the Examiner. As explained in the Specification, the data and the surrounding secondary cells are related to the data within the primary cell of the matrix. The data from the surrounding secondary cells are either derived from the data within the primary cell, or the data within the primary cell is derived from the data within the surrounding secondary cells. This is more fully explained in the Specification, and real world examples are given to assist one of ordinary skill in the art in understanding the invention.

The Office Action states that "appropriate correction is required", although applicant is at a loss to know what correction is required. Accordingly, applicant respectfully traverses this objection.

CLAIM REJECTIONS - 35 U.S.C. §103

Claims 1-34 were rejected under 35 U.S.C. §103(a) as being unpatentable over Chi et al. (U.S. Patent No. 6,509,898) in view of Zhang (U.S. Patent No. 6,897,875).

Chi et al. is directed to a method for generating a tree structure representation of a generalized graph structure. Chi specifically discusses that their invention addresses the problem of laying out large directed graphs, such as World Wide Web sites, so that the important relationships are exposed. Chi discusses, in column 1, lines 55-60, a web-site analysts' increasing desire to discover and understand user access patterns, relationships between web-page contents, and to efficiently structure web-site topology, and a need for a set of visualization tools which aid in the process of web-site analysis. More particularly, Chi discusses that conventional web-site display methods do not generate a structure to be displayed from the generalized graph structure, and that no conventional system modifies the positioning of nodes based within a displayed structure upon the nodes' usage. Thus, Chi is directed to the creation of a node-based tree structure graph in which the focus is upon node (web-page, documents obtained

from the web-site, etc.) usage. Chi, in column 2, lines 50-55, discusses that in their graph creation, the visitation order is determined by visiting the highest used nodes first. Thus, the child nodes are visited in order of decreasing usage parameters. Thus, popular web-pages are favored over less popular ones. Thus, in accordance with Chi, the root node (most used and accessed node) is positioned in the center of the layout, with less visited or used nodes at increasing distances away from the central root node. As discussed in column 5 of Chi, the resulting graph is two-dimensional, with a central root node, and a generally circular layout used to visualize the hierarchy, which is referred to by Chi as a disk tree visualization technique. In fact, Chi specifically states in column 5, lines 33-34 that the entire layout lies in a two-dimensional plane. The high traffic areas are concentrated near the root node, and as the document gets farther and farther away from the root node, the document or web-page has a lesser possibility of being accessed. This assists the web-site designer in designing and arranging the web-site such that the most accessed web-pages, documents, etc. (referred to as nodes in Chi) are more readily accessible, such as being placed on the home page, or having quick and direct links to obtain these web-pages or documents by the end user.

Zhang is directed to a method and system for analysis and visualization of multi-dimensional biological data. By multi-dimensional, it is very clear that Zhang means the x and y axes, by the creation of rows and columns. More particularly, Zhang discusses that there was in existence various statistical methods of handling vast quantities of data, such as genome sequencing as specifically addressed in Zhang. In columns 2-5, Zhang discusses various statistical models that were in use at the time of his invention, including Self-Organizing Map (SOM), feed-forward neural networks, hierarchical artificial neural networks, cluster data modeling and the like. Zhang discusses the creation of a matrix of clustered multi-dimensional biological data in the form of map units having a geometry that entirely fill the space, such as squares or hexagons. Thus, the prior art data clustering techniques are used to cluster and organize the map units of biological data. Zhang then shades and colors the individual map units according to a value of a select component of the data cluster represented by the map unit to

provide a "component plane presentation" to visualize the biological data. Zhang teaches that the shading can be of color (red, green, blue, yellow, etc.) and hue (brightness, darkness/lightness, or how the various colors would look when converted to black and white picture or gray-scale only). A shading scale is defined for each neighborhood map display to show where each shade falls with regard to color and/or hue and the associated data values (see columns 5-6). Thus, Zhang is directed to the shading or coloring of map units which have been clustered and organized into rows and columns by prior art methodologies. The map units are specifically directed to biological data, such as genome sequencing data.

With reference to independent claim 1, the present invention is directed to a process for visually organizing informational concepts. This process can be used to organize and analyze data by visually organizing the information concepts and relationships related to the data. A matrix is provided having a primary cell and two to seven secondary cells surrounding the primary cell. Primary objective or subject data is inserted into the primary cell. Data related to the primary objective or subject data is inserted into the surrounding secondary cells. The primary objective or subject data is interpreted and comprehended by means of the organization of the related data and the surrounding secondary cells. These same recitations are provided in independent claim 16.

Neither Chi nor Zhang interpret or comprehend the primary objective or subject data by means of the organization of the related data in the surrounding secondary cells.

Applicant fails to see how either Chi or Zhang is related to the invention of the present application, let alone to one another. The teachings of Chi and Zhang are only analogous to one another given the teachings of the present application, otherwise, the references are completely non-analogous. Of course, it is axiomatic that a claimed invention is not obvious solely because it is composed of elements that are individually found in the prior art. *Life Technologies, Inc. v. Clonetech Laboratories, Inc.*, 56 USPQ 2d 1186 (Fed. Cir. 2000).

Independent claim 1 has been amended to recite that data from a surrounding secondary cell is inserted into a primary sub-cell of a sub-matrix of the matrix. Features and characteristics of the data in the primary sub-cell are identified, and the identified feature and characteristic data is inserted into two to seven surrounding secondary sub-cells of the sub-matrix. This is illustrated and described in the Specification with respect to FIG. 1, wherein the creation of sub-matrices of an original matrix is shown and described. The Examiner rejected claims 11 and 18, directed to the sub-cell and sub-matrix recitations of amended independent claim 1 and claim 18, by the combination of Chi and Zhang. More particularly, the Examiner cited to column 5, lines 11-16 of Chi. However, as described above, Chi merely describes the fact that the tree-diagram of Chi is created in a ring or circular pattern, such that the center node is the node representing the data or web-pages which is accessed most frequently, and the nodes which are increasingly removed from the central node (in a circular fashion) are those pieces of information, web-sites, documents, etc. which are accessed less frequently. This forms a disk tree, in a two-dimensional plane, similar to rings of a tree. There is no description or teaching whatsoever in column 5, lines 11-15 (or in Chi or Zhang) of inserting data from a surrounding secondary cell of the matrix into a primary sub-cell of a sub-matrix of the matrix, identifying features and characteristics of the data and the primary sub-cell, and inserting identified feature and characteristic data into two to seven surrounding secondary sub-cells of the sub-matrix.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. M.P.E.P. §2143.03 (citing *In re Royka*, 180 USPQ 580 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970)).

Accordingly, as neither Chi nor Zhang disclose all of the recitations of amended independent claim 1, these references cannot render this claim obvious. As independent claim 1 is patentably distinct from both Chi and Zhang, those claims depending therefrom, namely, 3-10, 12-15 and 35 are also patentably distinct from

these references as it is well known that if an independent claim is non-obvious under 35 U.S.C. 103, then any claim depending therefrom is non-obvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Independent claim 16, in addition to that described above, has been amended to further recite that the data in the secondary cells are arranged such that dissimilar data are disposed in secondary cells on generally opposite sides of the primary cell. In the Office Action, claims 15, 19 and 24 were rejected based upon an assertion that Chi discloses that related data are arranged such that dissimilar related data are disposed in secondary cells on generally opposite sides of the primary cell. However, applicant's attorney cannot find this wording anywhere in the Chi patent, but instead it appears to be a direct quote of applicant's claims. Moreover, the Examiner cites to column 6, lines 32-35 of Chi, but instead it appears that this citation should be directed to the Zhang reference. This quote and citation is misguided. It is explained in Zhang that the data is arranged and clustered such that data having similar properties or characteristics is arranged in close proximity to similarly related data (referred to as map units). Thus, Zhang actually teaches away from the present invention by clustering data having similar characteristics near one another, whereas the recitations of amended independent claim 16, 15 and 24 specifically recite that the data is arranged such that dissimilar related data are disposed in secondary cells on generally opposite sides of the primary cell. Once again, neither Chi nor Zhang disclose the recitations, or steps, of these claims. Thus, these claims should be allowed. As independent claim 16 is patentably distinct from Chi and Zhang, those claims depending therefrom (17 and 18) are also patentably distinct and should be allowed.

Independent claim 20 recites the steps of providing a matrix having a primary cell and six secondary cells surrounding the primary cell. Data or factors which are known are inserted into the surrounding secondary cells. This data or factors in the surrounding cells is compared. The primary objective or subject data is derived based upon the comparison of the known data or factors, and then inserted into the primary central cell.

Applicant respectfully asserts that neither Chi nor Zhang disclose such a methodology. In fact, in Chi, the central node (representing the web-pages, documents, etc. that are most frequently accessed) is known and placed as a central node for this very purpose. Those nodes (documents, web-pages, etc.) which are not accessed as frequently are then placed around the central node, in a circular ring-like pattern. Chi in no way describes inserting known data or factors into surrounding secondary cells, and based upon a comparison of these deriving a primary objective or subject data to be inserted into the primary cell.

Similarly, Zhang does not perform or teach or even suggest these steps. Instead, Zhang discloses a two-dimensional graph of rows and columns of map units representing biological data. This biological data is not derived, but instead is already provided, and has been clustered in accordance with prior art techniques. This clustering involves placing map units or data with similar characteristics adjacent to one another. Zhang then applies its coloring and shading techniques so that an individual can see the differences and similarities amongst the clustered data. As shown in the drawings in the Zhang patent, the map units or data having similar characteristics are shaded a similar color, such that there are regions of similar hues, shades, or colors. Zhang in no way describes the methodology of providing a primary central cell, surrounding cells having known data and factors, and deriving the data of the primary cell by virtue of the comparison of the known data in the surrounding cells.

As neither Zhang nor Chi disclose these steps taken in conjunction with independent claim 20, these references cannot render independent claim 20 obvious. Thus, those claims depending therefrom (21-24 and 36) are patentably distinct and should be allowed as well.

Independent claim 25 recites the steps of providing a matrix having a primary cell and six secondary cells surrounding the primary cell. The primary objective or subject data is inserted into the primary cell. Data related to the primary objective or subject data is inserted into the surrounding secondary cells. A second matrix, having a primary cell and six secondary cells surrounding the primary cell generally vertically

aligned to the primary cell and secondary surrounding cells of the first matrix, is provided. This is illustrated in FIG. 6 of the Specification, wherein there are a plurality of such matrices vertically aligned with one another. The primary objective or subject data is inserted into the primary cell of the second matrix, and data related to the primary object or subject data is inserted into the surrounding secondary cells of the second matrix. The primary objective or subject of each matrix is interpreted and comprehended by means of the organization of the related data in the surrounding secondary cells. As recited in claim 28, the objective or subject data of the primary cell of both the first and second matrix are assigned to be the same, and the surrounding secondary cells of each matrix are vertically interchangeable so as to interpret this primary data.

Both Chi and Zhang are directed to two-dimensional graphs. Chi is directed to a flattened-out tree structure, in the form of a central node having expanding circular nodes to form a graph. Zhang discloses a two-dimensional graph of rows and columns of map units. Neither of these references disclose first and second matrices which are vertically aligned with one another so as to create a three-dimensional graph or matrix. Neither of these references disclose that the primary objective or subject data be common between the two vertically aligned, layered, matrices. Neither of these references disclose that the data within the secondary cells can be vertically interchangeable with the matrix immediately above or below that secondary cell. Thus, Chi and Zhang fail to render obvious the recitations of independent claim 25, and those claims depending therefrom.

With reference now to claim 31, this claim also recites the process for visually organizing informational concepts and relationships, including providing a matrix having a primary cell and six secondary cells surrounding the primary cell. The primary objective or subject data is inserted into the primary cell. Data related to the primary objective or subject data is inserted into the surrounding secondary cells. The primary objective or subject data is interpreted and comprehended by means of the organization of the related data in the surrounding secondary cells. The matrix is

cycled by removing related data from a surrounding secondary cell, and inserting new related data into at least one of the surrounding secondary cells. The primary objective or subject data is reinterpreted by means of the organization of the related data in the surrounding secondary cells.

The rejection that has been provided in the Office Action in relation to claims 20 and 31 is completely incomprehensible to applicant's attorney. Having read both the Chi and Zhang references, applicant's attorney can find nowhere in these references where there is any teaching or suggestion of providing such an arrangement, wherein data related to the data in the primary cell is removed from a secondary cell and new related data is inserted into that secondary cell, and the primary objective or subject data is reinterpreted by means of the organization of the related data in the surrounding secondary cells after such a cycle, or replacement, is performed. There is no such cycling of data in either Chi or Zhang. As described above, neither Chi nor Zhang interpret or comprehend primary objective or subject data within a primary cell by means of the related data in the surrounding secondary cells. Instead, Chi is directed to organizing nodes, in the context of web-site development, in accordance with frequency of usage, with the most frequent usage nodes being placed in the center; and Zhang is directed to a methodology for coloring and shading map units containing biological data which have been placed in rows and columns, such that the individual can visually see a given characteristic in groups of the map units due to the coloring or shading, which visually identifies the map units as groups having such characteristics.

The Examiner has also failed to take applicant's invention, as a whole, and compare them to Chi and Zhang, as a whole. As stated by M.P.E.P. §2141.02, in determining the differences between the prior art and the claims, the question under 35 U.S.C. §103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. Citing, *Stratoflex, Inc. v. Aeroquip Corp.*, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Norton Corp.*, 218 USPQ 698 (Fed. Cir. 1983). Further, a prior art reference must be considered in its entirety, i.e., as a whole including portions that would lead away from the claimed

invention. M.P.E.P. §2141.02, citing *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 220 USPQ 303 (Fed. Cir. 1983), *cert. Denied*, 469 US 851 (1984).

In light of the foregoing amendments and remarks, applicant respectfully submits that neither Chi or Zhang, alone or in combination with one another, render the claims of the present application obvious. Thus, applicant respectfully asserts that these rejections should be withdrawn, and the claims allowed.

Respectfully submitted,

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